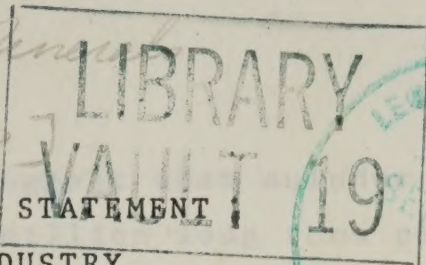


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ALBERTA GOVERNMENT POLICY STATEMENT  
ON ALBERTA SULPHUR INDUSTRY

Introduction

Sulphur in the form of hydrogen sulphide is a commonly occurring constituent of Alberta natural gas. The concentration of hydrogen sulphide varies from trace amounts to over 30 per cent but in all cases it must be removed before the gas can be marketed. If the amount of sulphur in the produced gas is more than a few tons per day, the hydrogen sulphide in addition to being extracted must be converted to sulphur. This is necessary both for conservation and for pollution control reasons. Alberta is an involuntary producer of sulphur - its production is not related to the market demand for sulphur but is controlled by the nature of our gas reserves and the demand and sales of gas.

During the past two decades, there has been a dramatic rise in the production of sulphur in the Province of Alberta. Production increased from a few thousand long tons per year in the early fifties to some 350,000 long tons in 1960. In the past decade Alberta sulphur production has increased 12-fold, being almost 4.2 million long tons in 1970.

Two factors have led to the substantial growth in Alberta sulphur production. The increase in demand for Alberta gas, primarily in Eastern Canada and the United States, has resulted in many more sulphur extraction plants being built to process additional volumes of gas. Also most recent new gas discoveries have been in the foothills regions of the Province where gas contains more hydrogen sulphide.

Alberta sulphur production will continue to increase rapidly over the coming years with the continued high demand for natural gas and more drilling in the foothills regions. A



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number of independent forecasts all suggest that sulphur production in Alberta will exceed eight million long tons per year by 1973 or 1974 and will be about 10 million long tons per year by 1976. Nearly all of the forecast production for the early future years is from existing processing plants or plants now under construction so the forecast may be considered highly reliable to 1974 and fairly accurate to 1976.

#### World Demand and Supply

The major use of sulphur is in the manufacture of sulphuric acid, which in turn is a basic industrial raw material, particularly in the chemical, fertilizer, pulp and paper, and metal industries. For this reason, world consumption has paralleled the industrial growth over the past twenty years. Western world consumption of sulphur in all forms grew from some 11 million long tons per year in 1950 to almost 18 million long tons per year by 1960. The rate of growth has averaged about 5.5 per cent per year over the past decade, resulting in 1970 consumption in excess of 29 million long tons. The consumption of sulphur in the western world is expected to continue its recent history of growth in the coming years.

The total western world demand for sulphur is supplied from several sources. These include sulphur produced from the Frasch mines of the United States and Mexico, sulphur recovered from natural gas, sulphur from pyrites, sulphur from mined ores, and sulphur recovered from pollution abatement programs including the clean-up of gases from smelters and from refineries processing sour crude oils. Alberta sulphur normally does not directly compete in the market with sulphur recovered from pyrites, smelter gas, native ores or sour crude oil. Also sulphur from natural gases in the United States finds its own separate market. Sulphur from all these sources is usually sold locally and recently has amounted to slightly more than 50

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per cent of the total western world sulphur demand. This leaves a "net brimstone demand" of less than one half of the total western world sulphur demand to be supplied from United States and Mexican Frasch production, sulphur recovered from natural gas in France, Polish exports to the western world, and sulphur recovered from natural gas in Alberta. The recent history of sulphur marketing from these sources has shown a substantial decline in exports of Frasch sulphur from Mexico and United States and a substantial increase in exports by Alberta and in exports to the western world from Poland.

Problems in forecasting both the total consumption and the production from these many other sources make it difficult to predict the future net brimstone demand and the prospects for marketing Alberta sulphur. These uncertainties result in forecasts of net brimstone demand ranging from ones that show substantial increases to forecasts reflecting decreases. However, since production from other sources, particularly from pollution abatement programs, is expected to grow more rapidly than total consumption over the coming years, the growth in the net brimstone demand in the next few years, if any, is likely to be modest. The forecast which I consider most reasonable indicates a net brimstone demand in 1976 of about 15.6 million long tons compared with the demand of some 13.8 million long tons in 1970.

#### Alberta Sales History

In the early years of the Alberta sulphur producing industry, Alberta sold most of its sulphur production in Canada, primarily in the west. In the late 1950's Alberta began selling sulphur in the United States and within a few years began shipping sulphur to off-shore markets. Annual sales increased slowly during the 1950's but jumped from about 85,000 long tons in 1959 to some 210,000 long tons in 1960. Sales continued to





increase rapidly and approximately one million long tons were sold in 1963. In 1964, the first year of a world sulphur shortage, sales amounted to some 1.5 million tons and substantially exceeded production. This under-supply situation prevailed until about 1967 when annual sales by Alberta producers topped two million tons. In 1968 sales reached some 2.2 million long tons but were much less than the annual production of about 3 million long tons. In 1970 sulphur sales by Alberta producers amounted to about 3.1 million long tons as compared to total Provincial production of 4.2 million long tons.

Inventories built up slowly during the early producing years and by the end of 1958 totalled only some 40,000 long tons. They then increased rapidly and by 1964 amounted to some one million long tons. The inventories were reduced to about 600,000 long tons by the end of 1967. Since then inventories have built up very rapidly, in fact by more than one million long tons per year in 1969 and 1970, and by the end of 1970 were over 3.5 million long tons. It is fortunate that sulphur can be stored at low cost in the open air with practically no deterioration but still inventories or stockpiles represent deferment of sales and therefore a loss of present worth income.

The value of Alberta sulphur sales, FOB the producing plant and on a unit basis, has varied considerably over the years. The value was reasonably constant in the range of \$20.00 to \$25.00 per long ton in the early years when sales were small and mostly local. In the early 1960's a surplus supply situation, particularly on a local basis, brought about a substantial decline in selling prices resulting in an average plant value of the order of \$11.00 per long ton in 1964. The world sulphur shortage of the mid-1960's resulted in large price increases and Alberta plant values





reached \$35.00 per long ton and higher in 1968. The natural increase in involuntary sulphur production on a world-wide basis, particularly in Alberta, and a further increase in involuntary sulphur production from Frasch mines brought about by the very high prices rapidly reversed the world situation to create one of over-supply by early 1969. Prices decreased rapidly to the point where the average 1970 FOB plant value for Alberta sulphur sales was less than \$9.00 per long ton.

As I mentioned earlier, sales of Alberta sulphur were essentially limited to markets within Canada until the late 1950's. Exports to the United States began at that time and grew to volumes in the range of 700,000 to 900,000 long tons per year where they have remained for the past five years. Off-shore shipments became significant in the mid-60's and by 1967 amounted to almost 900,000 long tons per year, over 40 per cent of the total sales of Alberta sulphur. By 1970 the total off-shore sales of Alberta sulphur amounted to some 1,550,000 long tons or about 50 per cent of total sales. Of this amount some 680,000 long tons were sold in Asian markets; about 400,000 long tons went to Europe and about 360,000 long tons were sold in Australia and New Zealand. A total of about 110,000 long tons were sold in other markets in Africa and Central and South America. Alberta sales of sulphur have grown most rapidly over the past couple of years in Europe where sales have increased from some 86,000 long tons in 1968 to about 400,000 long tons in 1970.

Both the total revenue to the plant owners and the royalties to the Alberta Government from sulphur sales have declined substantially in recent years. Total industry revenue FOB plant reached a peak of some 75 million dollars in 1968 and has declined to about 27 million dollars in 1970. This was despite an increase in sulphur production from about 3.0 million long tons to 4.2 million long tons, and an increase in sales from 2.2 million long tons to 3.1 million long tons.







The Alberta Government royalty on the production of sour natural gas is calculated on the value of the gas and other products, including sulphur, after processing. Naturally a decline in the revenue from sulphur sales affects the royalty. It is difficult to segregate the royalty attributable to sulphur but there is no doubt that the decline in sulphur sales revenue from 1968 to 1970 caused a loss in Government royalty of several million dollars.

### Outlook

Projections of western world sulphur supply and consumption lead to the conclusion that an over-supply situation is likely to exist for many years into the future. This world over-supply situation is particularly serious to Alberta because, as I mentioned earlier, our production is involuntary and it is expected to increase very rapidly from 4.2 million long tons in 1970 to as much as 10 million long tons by 1976. Accordingly, those sources of supply of the net brimstone demand or which compete for the sulphur markets not supplied from local sources (namely, the United States and Mexican Frasch producers, Poland, and the producers of sulphur from natural gas in France and Alberta) will face increasing competition from each other, and particularly from Alberta. In the absence of any arrangement for the regulation of production and inventories on the part of those producers competing for the net brimstone market, prices will undoubtedly continue the decline of recent years. We cannot forecast this decline with real accuracy but a conservative appraisal of the situation suggests that the average sulphur price in the principal marketing areas could decline even further and by a substantial amount.

The Alberta Government believes that if present marketing practices continued Alberta sulphur producers would be able to continue to market substantial volumes of sulphur in export







markets, but only with the previously mentioned downward movement of prices. Projections of individual markets where Alberta competes for sulphur sales lead to the conclusion that Alberta would be able to market over 4 million long tons in 1972 and that sales could grow over 6 million long tons by 1976 under present marketing practices. The increased sales would be accompanied by a reduced price possibly reflecting a netback to the Alberta plants of as little as \$3.00 to \$5.00 per long ton. The projected sales under present practices would continue to be considerably below forecast production and would result in a tremendous increase in inventories. Projections suggest that sulphur inventories could amount to as much as 25 million long tons by 1976 and would be growing at some 4 million tons per year by that time. Coupled with the further erosion of the dollar netback to Alberta producers and of the royalty to the Alberta Government this is not an attractive outlook.

The lower world price for sulphur and the lower netback to the plant site for Alberta producers would have a most serious impact on the Alberta Government's conservation and environmental control programs administered by the Energy Resources Conservation Board. With respect to conservation, if Alberta sulphur were to be valued at as low as \$3.00 to \$5.00 per long ton FOB plant site, recovery of sulphur would become economically unattractive in nearly every plant in the Province. Consequently, the Conservation Board would find it difficult to require increased sulphur recovery under such conditions of distress sulphur values. Furthermore, the sulphur not recovered would still have to be removed from the gas but would be directed to the atmosphere in the form of sulphur dioxide. The low sulphur prices would place an additional roadblock in the way of the Government's program of pollution control.







The reduced selling price for sulphur would have its impact on the economy of the Province due to the reduced total revenue to the industry. The royalty revenue to the Government would also continue to decrease. With sulphur prices at the plant as low as \$3.00 to \$5.00 per long ton royalty revenue attributable to sulphur would drop to the vanishing point.

#### Recent Actions

The Alberta sulphur producing industry and the Alberta Government have both been greatly concerned about the difficulties in marketing sulphur over the past few years and the related decline in revenue from sulphur sales. The industry, both on an individual company basis and in certain instances collectively, has taken steps to improve the competitive position of Alberta sulphur in world markets. Improvements have been made in the methods of handling, storing and shipping of sulphur. One of the more widely publicized developments is that of the movement of sulphur to tidewater at Vancouver by unit train, a method which is now commonly used. Also, an exchange arrangement has been worked out so that sulphur going to off-shore markets is taken from key shipping plants which produce sulphur in slated or flaked form. Another development for the future will see the creation of common stockpiles at shipping terminals thus reducing storage charges and facilitating movements to off-shore markets. Negotiations are continuing between the Alberta industry and Canadian railroads to improve further the economics of shipping Alberta sulphur to distant markets. Research directed to finding new uses for sulphur such as in asphalt mix and as building materials is being carried out in Alberta under cooperative industry sponsorship. I hope and expect that these efforts will continue and will meet with even greater success in the future.







The Alberta Government has also been actively studying the sulphur situation and has convened a series of meetings with Alberta producers. Since mid-1970 I have been working with an industry committee which has been advising me on sulphur matters. The committee has been very helpful and has done much work towards the solution of our problem. In fact, many of the statistics and projections referred to in this statement result from work of the industry sulphur committee. The Energy Resources Conservation Board also has provided me with much useful statistical information and technical advice. It has become apparent to me that Alberta's actions have, and will in the future have, a major influence on the world-wide marketing of sulphur. In particular I have become convinced that Alberta, in its own interests as well as in the interests of stability for both producers and consumers of sulphur, must regulate the amount of sulphur that is marketed. This would not constitute a control of price but, frankly speaking, I would hope that it would lead to a stabilization of prices at realistic levels. This would be better for all concerned than the wild swing of the recent past from over \$35.00 to below \$6.00 per long ton FOB Alberta plant or from \$50.00 to \$20.00 or so per long ton delivered to the customer.

The Canadian Government also has recognized the sulphur marketing problem and is working towards a long term solution. It recently served as host for a meeting of government officials from twelve countries, including both major exporters and importers of sulphur. It plans further international meetings to analyze the problems facing the world producers and consumers of sulphur now and over the long term and to develop solutions to them.

#### Summary

Let me now summarize the overall situation as the Alberta Government sees it.





1. Alberta production has become a major force in the world sulphur industry - Alberta is now the second largest producer and within a year will be the largest producer; already it is the largest exporter of sulphur, a position it will maintain.

2. The sulphur industry is important to the economy of the Province and of Canada. It bears an important share of the total cost of processing sour natural gas to fuel gas specifications.

3. The chaotic marketing of sulphur resulting in distress prices impairs the economics of both our resource conservation program and our programs for the prevention of atmospheric pollution due to sulphur compounds.

4. Controlled stockpiling of part of Alberta's involuntary production of sulphur with deferment of income from its sale is in the overall and long term interest not only of the Alberta producers and the Alberta Government but of the producing industry as a whole. The world consumers of sulphur would surely also welcome the stability of price at realistic levels which should result.

5. Alberta's concern about the state of the industry is shared by the producers in the other major exporting countries and these producers are looking to Alberta for leadership in actions to bring stability to the industry.

6. Alberta's concern also is shared by the Canadian Government which has recently taken steps to initiate inter-government discussions. These discussions may in time lead to some form of inter-government commodity agreement but, even if successful, this could take several years.

7. The Province of Alberta has too much at stake for the Government to permit the present situation to continue to deteriorate or even to wait in anticipation that the meetings sponsored by the Canadian Government will eventually prove helpful.





Policy Statement

Because of the importance of the matter to our Provincial economy, our royalty revenues and our conservation and pollution control programs the Alberta Government has decided to take the following steps.

1. It will continue and increase its joint efforts with the Alberta producers of sulphur to seek improved methods, increased efficiency and lower costs for the stockpiling, land transportation, terminalling and ocean transportation of sulphur.

2. Effective January 1, 1972, the Alberta Government, through my office as Minister of Mines and Minerals, and to preserve and strengthen the economic viability of Alberta's resource conservation and pollution control programs, will issue inventory control guidelines for the Alberta producers of sulphur. These guidelines will indicate, for each sulphur producing plant in Alberta, the percentage of the sulphur produced which in the Minister's judgment should be added to inventory or stockpile. The guidelines will be issued either on a monthly or a quarterly basis and suitably in advance of the period to which they apply. All producers will be asked and expected to comply with the guidelines. I expect that this program of inventory control will lead to a return to reality and stabilization in world sulphur prices to the benefit of all concerned. It should allow Alberta to proceed with its programs of resource conservation and pollution control. It should result in more realistic royalty payments as the sulphur is marketed.

3. Prior to the next session of the Alberta Legislature detailed consideration will be given to the possible need for special legislation for the creation of a sulphur marketing agency or to permit other actions by the Government as may be required. These will be dictated by our experience with the inventory control program.





In announcing this program of the Government I wish to assure you that the decision to take these steps has not been made lightly. The whole matter has been the subject of study and discussions for a full year. The Government, as custodian for the people of the natural resources of the Province, is convinced that it would be failing in its responsibilities if it were not to take action at this time. Also, I should say that the Alberta Government is not opposed to the actions being taken by the Canadian Government. We hope their actions will eventually be successful and that they may be suitable to replace at least part of the Alberta Government program. Meanwhile, however, we must proceed.

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Statement of the Honourable A. R. Patrick,  
Minister of Mines and Minerals,  
Government of the Province of Alberta, Canada

July 22, 1971





